

1   **CLAIMS:**

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3   **What is claimed is:**

4

5   **1. In an automatic pinsetter bowling machine including a ball return wheel (6)**

6       **for discharge into bowling ball return rails (15), the improvement wherein**

7       **retriever (1) device having a positive contact base and having one or more pieces**

8       **with means for securing said device to the ball return wheel ( 6).**

9

10   **2. A device as recited in claim 1, wherein bottom (7) of retriever (1) is configured**

11       **convex to physically comply with the inside radius of the ball return wheel (8).**

12

13   **3. A device recited in claim 1, wherein lead guide finger (9) of retriever (1) is designed**

14       **to retrieve the ball, differentiating between said ball and pins, to guide, capture and house**

15       **said ball in its concave leading edge (10) in the process of delivery and subsequent**

16       **discharge into the ball return rails (15).**

17

18   **4. A device as recited in claim 1, wherein the radius of the lead guide finger( 11)**

19       **applies the correct amount of pressure against the back ball lift rod( 12) in**

20       **the process of delivery and subsequent discharge into the ball return rails(15).**

21

22   **5. A device as recited in claim 1, having a leading edge(13) with a radius for assisting**

23       **in the process of delivery and subsequent discharge into the ball return rails (15).**

24

25   **6. A device recited in claim 1, having a top trailing edge(14) for assisting in**

26       **the process of delivery and subsequent discharge into the ball return rails(15).**

- 1    **7. A device as recited in claim 1, having an elongated front angled edge(3) for**  
2       **assisting in the process of delivery and subsequent discharge into the ball**  
3       **return rails(15).**  
4
- 5    **8. A device as recited in claim 1, having an angle top rear(4) for assisting in**  
6       **the process of delivery and subsequent discharge into the ball return rails(15).**
- 7    **9. A device as recited in claim 1, having a recess (5) for assisting in the process of**  
8       **delivery and subsequent discharge into the ball return rails(15).**  
9
- 10   **10. A device as recited in claim 1, having a ball impact cushion(16) for assisting**  
11       **in the process of delivery and subsequent discharge into the ball return rails(15).**  
12
- 13   **11. A device as recited in claim 1, having a ball protector lip( 17) for assisting in the**  
14       **process of delivery and subsequent discharge into the ball return rails(15).**  
15
- 16   **12. In an automatic pinsetter bowling machine including a ball return wheel (6)**  
17       **for discharge into bowling ball return rails(15), a device comprising:**  
18       **a positive contact base and having one or more pieces with means for securing**  
19       **said device to ball return wheel(6) wherein lead guide finger(9) of retriever(1)**  
20       **is designed to retrieve the ball, differentiating between said ball and pins, to guide,**  
21       **capture and house said ball in its concave leading edge (10) in the process of**  
22       **delivery and subsequent discharge into the ball return rails (15).**  
23
- 24   **13. A device as recited in claim 12, wherein bottom (7) of retriever (1) is configured**  
25       **convex to physically comply with the inside radius of the ball return wheel(8).**

- 1    14.    A device as recited in claim 12, wherein the radius of the lead guide finger(11)  
2           applies the correct amount of pressure against the back ball lift rod (12) in  
3           the process of delivery and subsequent discharge into the ball return rails (15).  
4
- 5    15.    A device as recited in claim 12, having a leading edge (13) with a radius for  
6           assisting in the process of delivery and subsequent discharge into the ball  
7           return rails (15).  
8
- 9    16.    A device as recited in claim 12, having a top trailing edge (14) for assisting  
10           in the process of delivery and subsequent discharge into the ball return  
11           rails (15).  
12
- 13   17.    A device as recited in claim 12, having an elongated front angle edge (3)  
14           for assisting in the process of delivery and subsequent discharge into the  
15           ball return rails (15).  
16
- 17   18.    A device as recited in claim 12, having an angle top rear (4) for assisting in the process  
18           of delivery and subsequent discharge into the ball return rails (15).  
19
- 20   19.    A device as recited in claim 12, having a recess (5) for assisting in the process of  
21           delivery and subsequent discharge into the ball return rails (15).  
22
- 23   20.    A device as recited in claim 12, having a ball impact cushion (16) for assisting  
24           in the process of delivery and subsequent discharge into the ball return rails (15).  
25
- 26   21.    A device as recited in claim 12, having a ball protector lip (17) for assisting in the

1 process of delivery and subsequent discharge into the ball return rails (15).

2

3 22. In an automatic pinsetter bowling machine including a ball return wheel (6)  
4 for discharge into the bowling ball return rails (15), a device comprising:  
5 a positive contact base and having one or more pieces with means for securing  
6 said device to ball return wheel (6);  
7 wherein lead guide finger (9) of said device is designed to retrieve the ball,  
8 differentiating between said ball and pin, to guide, capture and house said ball  
9 in its concave leading edge (10) in the process of delivery and subsequent  
10 discharge into ball return rails (15) ;  
11 wherein the radius of the lead guide finger (11) of said device applies the correct  
12 amount of pressure against the back ball lift rod (12) in the process of delivery  
13 and subsequent discharge into the ball return rails (15) ;  
14 said device having a top trailing edge (14) for assisting in the process of delivery  
15 and subsequent discharge into the ball return rails (15) ;  
16 said device having an elongated front angle edge (3) for assisting in the  
17 process of delivery and subsequent discharge into the ball return rails (15) ;  
18 said device having an angle top rear (4) for assisting in the process of delivery and  
19 subsequent discharge into the ball return rails (15) ;  
20 said device having a recess (5) for assisting in the process  
21 of delivery and subsequent discharge into the ball return rails (15) ;  
22 said device having ball impact cushions ( 16) for assisting in the process of  
23 delivery and subsequent discharge into the ball return rails (15) ;  
24 said device having a ball protector lip ( 17) for assisting in the process of  
25 delivery and subsequent discharge into the ball return rails ( 15) .

## **REFERENCE 1**

- 1. Retriever**
- 2. Pop rivets**
- 3. Elongated front angled edge**
- 4. Second angle top rear**
- 5. Recess**
- 6. Ball return wheel**
- 7. Bottom**
- 8. Inside radius of the ball return wheel**
- 9. Lead guide finger**
- 10. Concave leading edge**
- 11. Radius of lead guide finger**
- 12. Ball lift rod**
- 13. Leading edge**
- 14. Top trailing edge**
- 15. Ball return rails**
- 16. Ball impact cushion**
- 17. Ball protector lip**

## **REFERENCE 2**

1. The bowling ball retriever 1, operating on Brunswick models A and A2
2. automatic pinsetters, is capable of operating at standard machine
3. speeds. However to enhance it's capabilities, we utilize and do recommend
4. using, a ball wheel speed reduction modification for Brunswick Models
5. A and A2 as described hereinafter. The standard Brunswick Models
6. A1 and A2 automatic pinsetter has been modified through a series of belt
7. And pulley ratio changes that allow the ball wheel 6 ( Brunswick Ref.
8. # E142) to run approximately 1/3 of it's normal speed while keeping the
9. other Brunswick components running at or near their standard speeds.
10. Referring to Reference sheet 4 The speed reduction consists of the changing
11. Of the length of belt-jack shaft cross drive ( Brunswick Ref. # E7) the
12. Diameter of sheave ( Brunswick Ref. # E 41), the diameter of sheave
13. ( Brunswick Ref. # E 40), the diameter of pulley assembly ( Brunswick
14. Ref. # PC 17), the diameter sheave ( Brunswick Ref. # PC 61), the length
15. Of ball wheel belt ( Brunswick Ref. # E 6) and the diameter of sheave
16. ( Brunswick Ref. # E 41).